Rule CIC156:   The DSHIPINT value might be too large

Finding: CPExpert believes that the value for the DSHIPINT parameter may be too large.

Impact: This finding should normally have a LOW IMPACT or MEDIUM IMPACT on the performance of the CICS region, but the impact could be LARGE during times when the CICS-supplied CRMF transaction executes This finding applies to CICS Release 4.1 and later releases of CICS.

Logic flow: This is a basic finding based on analysis of the CICS interval statistics.

Discussion: In a transaction routing environment, terminal definitions can be "shipped" from a terminal-owning region (TOR) to an application-owning region (AOR). The terminal definition becomes redundant in the AOR under the following conditions:

- The terminal user logs off.

- The terminal user stops using transactions which route to the AOR.

- The TOR on which the user is signed on is shut down.

- The TOR is restarted without recovering autoinstalled terminal definitions, and the autoinstall user program DFHZATDX assigns a new set of terminal ids to the same set of terminals.

Shipped terminal definitions which have become redundant may need to be deleted. Long-lasting shipped terminal definitions do not generally cause storage problems because of the relatively small amounts of storage which they occupy. However, there are other considerations, such as security, which may require that redundant shipped terminal definitions are not allowed to persist in an AOR.

The CICS-supplied transaction CRMF periodically scans the shipped terminal definitions in the AOR and flags those which it has determined to be redundant. If any redundant definitions have been identified, the CICS-supplied transaction CRMD is invoked to delete the redundant definitions. This processing is referred to as the CICS timeout delete mechanism.

The system initialization parameters DSHIPINT and DSHIPIDL control the amount of time for which a redundant shipped terminal definition is allowed

to survive and the frequency at which shipped terminal definitions are tested for redundancy.

- The DSHIPINT parameter in the SIT specifies the interval between invocations of the CRMF transaction. The CRMF transaction searches for shipped transactions have not been used longer than that specified by the DSHIPIDL parameter. The default value for the DSHIPINT parameter is 12 hours, meaning that the CRMF transaction will be invoked every 12 hours to search for redundant shipped terminal definitions.

- The DSHIPIDL parameter in the SIT specifies the minimum time, in hours, minutes, and seconds, that an inactive shipped terminal definition must remain installed in this region. When the CRMF transaction is invoked, only those shipped definitions that have been inactive for longer than the specified time are deleted. The default value for the DSHIPIDL parameter is 2 hours, meaning that shipped terminal definitions will be considered redundant if they have been unused for more than 2 hours.

Both of these parameters can be altered dynamically by issuing a CEMT SET DELETSHIPPED or EXEC CICS SET DELETSHIPPED command to reset the intervals.

If the CRMF/CRMD processing deletes a shipped terminal definition, the terminal definition must be re-shipped when the terminal user next routes a transaction from the TOR to the AOR. The deletion of the terminal definition and re-shipping incurs CPU overhead that can be eliminated or minimized with appropriate settings of the DSHIPINT and DSHIPIDL parameters.

The IBM *CICS Performance Guides* indicate that the default setting of 2 hours for the DSHIPIDL parameter is a reasonable value, unless security issues dictate a lower value. However, the default setting of DSHIPINT might not be appropriate.

If the default value of 12 hours (or a similarly high value) is specified for the DSHIPINT parameter, the CRMF transaction might identify a considerable number of redundant terminal definitions during a single expiration of the DSHIPINT value. Consequently, a relatively large "burst" of CPU would be required for the CRMD transaction processing.

CPExpert compares the A04SKDEL variable in CICSAUTO (the number of shipped terminals deleted) with the **TRMSKDEL** guidance variable in USOURCE(CICGUIDE). CPExpert produces Rule CIC156 when the number of shipped terminals deleted exceeds the value specified by the **TRMSKDEL** guidance variable.

The default value for the **TRMSKDEL** guidance value is 50, indicating that Rule CIC156 will be produced when more than 50 shipped terminal definitions have been deleted during any CICS interval statistics period.

Suggestion: The CRMF transaction processing causes negligible CPU overhead. Consequently, there is little overhead incurred by specifying a low value for DSHIPINT (causing the CRMF transaction to be invoked relatively often).

CPExpert suggests that you consider specifying a relatively low value (for example, specify an hour or so) for the DSHIPINT variable. This relatively frequent execution of CRMF would result in redundant terminal definitions being identified as their idle time exceeds the DSHIPIDL value. These redundant terminal definitions would be deleted on a more regular basis and the CPU processing would be spread out over time, rather than the CPU overhead occurring in "bursts" of CPU overhead.

Reference: *CICS/ESA Version 4.1.1 Performance Guide*: Section 4.8.6 and Appendix A.1.1.

CICS/TS Release 1.1 Performance Guide: Section 4.8.7 and Appendix 1.1.2.

CICS/TS Release 1.2 Performance Guide: Section 4.8.7 and Appendix 1.1.2.

CICS/TS Release 1.3 Performance Guide: Section 4.12.7 and Appendix 1.1.2.

CICS/TS for z/OS Release 2.1 *Performance Guide*: Chapter 24 (Deletion of shipped terminal definitions) and Appendix A (Table 17).

CICS/TS for z/OS Release 2.1 *Performance Guide*: Section 4.11.7 | (Controlling the deletion of shipped terminal definitions) and Appendix | 1.1.1.2. |